

Week 2 Quiz

LATEST SUBMISSION GRADE

100%

1. Suppose I define the following function in R

1 / 1 point

```
1 cube <- function(x, n) {  
2   x^3  
3 }
```

What is the result of running

```
1 cube(3)
```

in R after defining this function?

- ☐ The users is prompted to specify the value of 'n'.
- ☐ An error is returned because 'n' is not specified in the call to 'cube'
- ☒ The number 27 is returned
- ☐ A warning is given with no value returned.

✓ Correct

2. The following code will produce a warning in R.

1 / 1 point

```
1 x <- 1:10  
2 if(x > 5) {  
3   x <- 0  
4 }
```

Why?

- ☒ 'x' is a vector of length 10 and 'if' can only test a single logical statement.
- ☐ You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar.
- ☐ There are no elements in 'x' that are greater than 5
- ☐ The expression uses curly braces.
- ☐ The syntax of this R expression is incorrect.

✓ Correct

3. Consider the following function

1 / 1 point

```
1 f <- function(x) {  
2   g <- function(y) {  
3     y + z  
4   }  
5   z <- 4  
6   x + g(x)  
7 }
```

If I then run in R

```
1 z <- 10  
2 f(3)
```

What value is returned?

- ☐ 7
- ☐ 4
- ☐ 16
- ☒ 10

✓ Correct

4. Consider the following expression:

1 / 1 point

```
1 x <- 5  
2 y <- if(x < 3) {  
3   NA  
4 } else {  
5   10  
6 }
```

What is the value of 'y' after evaluating this expression?

- ☐ 3
- ☐ NA
- ☒ 10
- ☐ 5

✓ Correct

5. Consider the following R function

1 / 1 point

```
1 h <- function(x, y = NULL, d = 3L) {  
2   z <- cbind(x, d)  
3   if(!is.null(y))  
4     z <- z + y  
5   else  
6     z <- z + f  
7   g <- x + y / z  
8   if(d == 3L)  
9     return(g)  
10  g <- g + 10  
11  g  
12 }
```

Which symbol in the above function is a free variable?

- ☒ f
- ☐ z
- ☐ d
- ☐ L
- ☐ g

✓ Correct

6. What is an environment in R?

1 / 1 point

- ☐ a special type of function
- ☐ an R package that only contains data
- ☒ a collection of symbol/value pairs
- ☐ a list whose elements are all functions

✓ Correct

7. The R language uses what type of scoping rule for resolving free variables?

1 / 1 point

- ☐ dynamic scoping
- ☒ lexical scoping
- ☐ compilation scoping
- ☐ global scoping

✓ Correct

8. How are free variables in R functions resolved?

1 / 1 point

- ☒ The values of free variables are searched for in the environment in which the function was defined
- ☐ The values of free variables are searched for in the global environment
- ☐ The values of free variables are searched for in the working directory
- ☐ The values of free variables are searched for in the environment in which the function was called

✓ Correct

9. What is one of the consequences of the scoping rules used in R?

1 / 1 point

- ☐ All objects can be stored on the disk
- ☐ Functions cannot be nested
- ☒ All objects must be stored in memory
- ☐ R objects cannot be larger than 100 MB

✓ Correct

10. In R, what is the parent frame?

1 / 1 point

- ☐ It is the environment in which a function was defined
- ☐ It is the package search list
- ☐ It is always the global environment
- ☒ It is the environment in which a function was called

✓ Correct